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复合菌制剂对断奶仔猪生长性能、粪便微生物和血清指标的影响

董晓丽¹, 张乃锋¹, 周盟^{1,2}, 屠焰¹, 刁其玉¹

1. 中国农业科学院饲料研究所, 农业部饲料生物技术重点实验室, 北京 100081;

2. 新疆农业大学动物科学学院, 乌鲁木齐 830052

Effects of Complex-Probiotics on Growth Performance, Fecal Microbiota and Serum Profiles in Weaner Piglets

DONG Xiaoli¹, ZHANG Naifeng¹, ZHOU Meng^{1,2}, TU Yan¹, DIAO Qiyu¹

1. Feed Research Institute, Chinese Academy of Agricultural Sciences, Key Laboratory of Feed Biotechnology of the Ministry of Agriculture, Beijing 100081, China;

2. College of Animal Science, Xinjiang Agricultural University, Urumchi 830052, China

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摘要 本试验旨在探讨饲料中添加复合菌制剂对断奶仔猪生长性能、粪便微生物和血清指标的影响。试验选用96头35~37日龄的断奶仔猪(长×大),平均体重为(9.70±0.88) kg,将其分为3组,每组4个重复,每个重复8头仔猪。3个组分别饲喂不含抗生素和益生菌的基础饲料(对照组),基础饲料中添加地衣芽孢杆菌、枯草芽孢杆菌和植物乳杆菌复合菌制剂的试验饲料(复合菌组)和基础饲料中添加吉他霉素的试验饲料(抗生素组)。试验期35 d。结果表明:1)整个试验期,饲料中添加复合菌制剂对断奶仔猪生长性能无显著影响($P>0.05$)。2)试验第35天,饲喂复合菌制剂的仔猪粪便大肠杆菌的数量显著低于对照组和抗生素组($P<0.05$)。3)试验第14天,饲喂复合菌制剂的仔猪血清球蛋白含量显著高于对照组($P<0.05$),而血清白蛋白/球蛋白显著低于对照组($P<0.05$);试验第35天,饲喂复合菌制剂的仔猪血清球蛋白含量显著高于抗生素组($P<0.05$),但是血清白蛋白/球蛋白显著低于抗生素组($P<0.05$);整个试验期,不同组间血清白蛋白、尿素氮、肌酐含量及碱性磷酸酶活性均无显著差异($P>0.05$)。4)试验第14天,饲喂复合菌制剂的仔猪血清免疫球蛋白M含量显著高于对照组($P<0.05$);试验第35天,饲喂复合菌制剂的仔猪血清免疫球蛋白A含量显著高于抗生素组($P<0.05$)。由此可知,饲料中添加地衣芽孢杆菌、枯草芽孢杆菌和植物乳杆菌复合菌制剂能降低断奶仔猪粪便中大肠杆菌的数量,增强断奶仔猪免疫力。

关键词: 复合菌制剂 断奶仔猪 生长性能 粪便微生物 血清指标

Abstract: This study was conducted to evaluate the effects of complex-probiotics supplementation on growth performance, fecal microbiota and serum profiles of weaner piglets. Ninety-six (48 females and 48 males) piglets (Large White×Landrace) weaned at 35 to 37 days of age [the average body weight was (9.70±0.88) kg] were selected and divided into 3 groups with 4 replicates per group and 8 piglets per replicate. The piglets in each group were fed one of 3 diets: a basal diet without antibiotics and probiotics (control), the basal diet supplemented with complex-probiotics (including *Bacillus licheniformis*, *Bacillus subtilis* and *Lactobacillus plantarum*, probiotics group) or the basal diet supplemented with kitasamycin (antibiotic group). The trial lasted for 35 days. The results showed as follows: 1) during the whole experiment period, no differences among three groups in average daily feed intake (ADFI) and average daily gain (ADG) were detected ($P>0.05$). 2) On day 35, the number of *E. coli* in feces of the piglets fed the diets supplemented with complex-probiotics was significantly lower than that fed the other diets ($P<0.05$). 3) On day 14, compared with the control group, the supplementation of complex-probiotics significantly increased serum albumin content ($P<0.05$), but significantly decreased the ratio of albumin to globulin in serum ($P<0.05$). On day 35, compared with antibiotic group, serum globulin content of piglets fed the diets supplemented with complex-probiotics was significantly increased ($P<0.05$) and the ratio of albumin to globulin in serum was significantly decreased ($P<0.05$). During the whole experiment period, the contents of albumin, urea nitrogen and creatinine, and the activity of alkaline phosphatase in serum were unaffected by the supplementation of complex-probiotics ($P>0.05$). 4) On day 14, the supplementation of complex-probiotics significantly increased serum IgM content compared with the control group ($P<0.05$). On day 35, the supplementation of complex-probiotics significantly increased serum IgA content compared with antibiotic group ($P<0.05$). These results suggest that complex-probiotics supplementation of *Bacillus licheniformis*, *Bacillus subtilis* and *Lactobacillus plantarum* decreases the number of *E. coli* in feces and enhances immune responses in piglets.

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Keywords: complex-probiotics, weaner piglets, growth performance, fecal microbiota, serum profiles

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通讯作者 刁其玉, 研究员, 博士生导师, E-mail: diaoqiuyu@mail.caas.net.cn

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